

### Office Action Summary

**Application No.**

10/687,425

**Applicant(s)**

FISH ET AL.

**Examiner**

Aradhana Sasan

**Art Unit**

1615

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 26-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 11/5/07

**DETAILED ACTION**

***Status of Application***

1. The remarks and amendments filed on 12/6/07 are acknowledged.
2. Claims 1-25 were cancelled.
3. Claims 26-55 are included in the prosecution.

***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on 11/5/07 is acknowledged. The submission is in compliance with the provisions of 37 CFR 1.97 and 1.98. Accordingly, the examiner is considering the information disclosure statement.

See attached copy of PTO-1449.

***Response to Arguments***

**Objection to the Specification**

5. In light of applicant's amendment of the specification, the objection to the specification (of 9/6/07) is withdrawn.

**Rejection of claim 5 under 35 USC § 112, first paragraph**

6. In light of applicant's cancellation of claim 5, the rejection under 35 U.S.C. § 112, first paragraph is withdrawn.

**Rejection of claims 3-5 under 35 USC § 112, second paragraph**

7. In light of applicant's cancellation of claims 3-5, the rejection under 35 U.S.C. § 112, first paragraph is withdrawn.

**Rejection under obviousness-type double patenting**

8. Applicant's agreement to submit terminal disclaimers for the references in the obviousness-type double patenting rejection is acknowledged. Until such time that the terminal disclaimers are filed and approved, the rejection will be maintained.

**Rejection of claims 1-22 under 35 USC § 103(a)**

9. Applicant's arguments, see page 8, filed 12/6/07, with respect to the rejection of claims 1-22 under 35 U.S.C. § 103, have been fully considered and are persuasive. The rejection of 9/6/07 has been withdrawn.

10. However, upon further consideration rejections based on a new reference follow.

***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 26 and 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms "less than about" (claim 26) and "at least about" (claim 36) is a relative term, which is not defined by the claim, and renders the claims indefinite. The specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 26, 38-41 and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Rohrbaugh et al. (US 2002/0151634 A1).

The claimed invention is a film comprising a blend of a thermoplastic polymer and nanoparticles. The nanoparticles have a diameter of less than about 500nm and are modified with a metal ion to form modified nanoparticles.

Rohrbaugh teaches coating compositions comprising a nanoparticle system and articles of manufacture that create multi-use benefits to the modified surfaces including malodor control (Abstract). The soft surfaces that are coated include fabrics, such as nonwoven fabrics, garments, textiles and films (Page 2, [0025]). The soft surfaces may comprise fibers from mineral sources such as polyolefin fibers (Page 2, [0026]). Nonwoven fabrics are disclosed (Page 3, [0030] to [0031]). The nanoparticles diameter can be between 0nm and 750nm (Page 5, [0044]). It is also disclosed that inorganic nanoparticles generally exist as silicates (Page 5, [0046]). Surface molecules can be associated with surfaces of the nanoparticles (Page 5, [0045]). The surface of the nanoparticles may be "functionalized" by the association with charged functionalized surface molecules including multi-valent inorganic salts consisting of  $\text{Cu}^{+2}$  (Page 8, [0069]). It is also disclosed that "the materials that have been subjected to a high energy surface treatment and have a plurality of nanoparticles deposited thereon can be suitable for a great many uses including, but not limited to use to transport liquid in articles such as clothing containing hydrophobic or borderline hydrophilic fibers and in

portions of disposable absorbent articles" (Page 14, [0139]). Examples 14-15 and 20-21 include nanoparticle coating compositions (Page 19, Tables 2 and 4).

Regarding instant claim 26, the limitation of the film is anticipated by the soft surfaces that are coated including films, as taught by Rohrbaugh (Page 2, [0025]). The blend comprising a thermoplastic polymer is anticipated by the polyolefin, which is a thermoplastic polymer, as taught by Rohrbaugh (Page 2, [0026]). The blend comprising nanoparticles is anticipated by the nanoparticle system that imparts surface modifying benefits for all types of soft surfaces, as taught by Rohrbaugh (Page 1, [0002]). The diameter of less than about 500nm is anticipated by the nanoparticles with a diameter between 0nm and 750nm, as taught by Rohrbaugh (Page 5, [0044]). The nanoparticles modified with a metal ion is anticipated by the association of nanoparticles with charged functionalized surface molecules including multi-valent inorganic salts consisting of  $\text{Cu}^{+2}$ , as taught by Rohrbaugh (Page 8, [0069]).

Regarding instant claims 38-41, the limitations of the silica nanoparticles, and the copper ion are anticipated by the silicate nanoparticles (Page 5, [0046]) and the  $\text{Cu}^{+2}$  used on the surface of the nanoparticles as taught by Rohrbaugh (Page 8, [0069]).

Regarding instant claim 49, the limitation of polyolefin as the thermoplastic polymer is anticipated by the polyolefin fibers taught by Rohrbaugh (Page 2, [0026]).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 34-37, 46-48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbaugh et al. (US 2002/0151634 A1).

The teaching of Rohrbaugh is stated above.

Rohrbaugh does not expressly teach the zeta potential values of the nanoparticles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the modified silica nanoparticles, as suggested by Rohrbaugh, and modify the addition of the positively charged metal ions to the silica nanoparticles during the process of routine experimentation, and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because during the process of routine experimentation the amount of positively charged metal ions (such as copper) would be modified depending on the desired final charge or associated zeta potential of the nanoparticles.

Regarding instant claims 34-37, the limitation of the negative first zeta potential of the nanoparticles would have been obvious over the silica nanoparticles taught by Rohrbaugh (Page 5, [0046]) because silica nanoparticles have a negative surface charge and therefore a negative electrical potential or zeta potential. It is this negative surface charge or negative zeta potential that allows the silica nanoparticles to be

associated or modified by a positively charged metal ion such as  $\text{Cu}^{2+}$ , which is taught by Rohrbaugh (Page 8, [0069]). The limitation of the range of the negative first zeta potential (claims 34-35) would have been obvious given the desired association with a metal ion. The limitation of a second zeta potential that is higher than the first zeta potential would have been obvious because once a positively charged metal ion modifies the surface of the nanoparticle, the first negative zeta potential will consequently be higher, depending on the desired amount of modification or addition of positively charged metal ions.

Regarding instant claims 46-48, the limitations of the surface area of the nanoparticles would have been obvious over the nanoparticles with a diameter between 0nm and 750nm, as taught by Rohrbaugh (Page 5, [0044]). The surface area is an inherent property of the nanoparticle and since the diameter of the nanoparticles is taught, the surface area of the nanoparticle is implicitly taught by Rohrbaugh.

Regarding instant claim 50, the film comprising a blend of a thermoplastic polymer and silica nanoparticles would have been obvious over the films (Page 2, [0025]), thermoplastic polyolefin fibers (Page 2, [0026]) and silica nanoparticles (Page 5, [0046]) taught by Rohrbaugh. The zeta potential limitation is discussed above.

17. Claims 27-33, 42-45 and 51-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbaugh et al. (US 2002/0151634 A1) in view of Mormon et al. (US 2002/0004350).

The teaching of Rohrbaugh is stated above.

Rohrbaugh does not expressly teach the composition further comprising a filler and the WVTR of the film.

Mormon teaches a breathable film that is used in a variety of personal care garments and protective garments (Abstract). Example 1 discloses a film where the core layer contained 58% by weight of stearic acid coated calcium carbonate particles having a mean diameter of about 1 micron and a top cut of 7 microns (Page 9, [0088]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a composition with a soft surface such as a film and nanoparticles that are charged with multivalent inorganic salts, as suggested by Rohrbaugh, and combine it with the film containing stearic acid coated filler (calcium carbonate), as suggested by Mormon, and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because Mormon teaches that filler content and filler particle size are among the factors that determine the breathability and liquid barrier of the film (Page 5, [0051]).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Regarding instant claims 27-33, the limitation of the filler, the percentage of the filler, the particle size of the filler, the selection of calcium carbonate as the filler would



have been obvious to one skilled in the art over the teaching of 58% by weight of stearic acid coated calcium carbonate particles having a mean diameter of about 1 micron and a top cut of 7 microns as taught by Mormon (Page 9, [0088]).

Regarding instant claims 42-45 and 51, the limitations of the WVTR of the film would have been obvious over the film and breathable laminate with WVTR of not less than 4000 grams/m<sup>2</sup> -24 hours, as taught by Mormon (Page 1, [0005] and [0006]).

Regarding instant claims 51-55, the limitation of the personal care product would have been obvious over the disposable absorbent articles taught by Rohrbaugh (Page 14, [0139]) and by the personal care absorbent articles and protective garments such as disposable diapers taught by Mormon (Page 1, [0007]). The limitation of a nonwoven fabric laminated to the film would have been obvious over the non-woven web that is bonded to the breathable film, as taught by Mormon (Page 1, [0006]).

### ***Double Patenting***

18. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

Art Unit: 1615

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a

terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

19. Claims 26, 39, 46-48 and 51-55 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 31-32, 34, 36, 43, and 45 of copending Application No. 10/686,933 ('933 hereinafter). Claims 26, 39-41 and 50-55 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 40-42, 47, 49 and 51 of copending Application No. 10/686,938 ('938 hereinafter). Claims 26, 37-41, 46-48 and 50-55 over claims 36-40, 52-56, 68, 70, 72 of copending Application No. 10/686,939 ('939 hereinafter).

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 31-32, 34, 36, 43, and 45 of '933 are drawn to an absorbent article comprising a porous substrate which further contains nanoparticles formed from silica, having an average size of from about 1 to about 50 nanometers, and a surface area of from about 50 to about 1000 square meters per gram. The difference is that the claims of '933 do not include the metal ion in addition to the silica nanoparticles for odor absorption.

Claims 40-42, 47, 49 and 51 of '938 are drawn to a substrate comprising silica particles bonded to a transition metal (copper), which provides active sites for bonding odorous compounds.

Claims 36-40, 52-56, 68, 70, 72 of '939 are drawn to an odor control composition comprising particles formed from silica that are modified by a transition metal, the particles have a positive zeta potential, the transition metal provides active sites for capturing an odorous compound, the particle size is less than about 100 nanometers, the surface area of the particles is from about 50 to about 1000 square meters per gram, and copper is one of the transition metals.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the absorbent article comprising silica nanoparticles of '933 with the odor absorbing silica nanoparticles that are bonded to a transition metal of '938 and '939 and produce the instant invention.

These are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

20. Claims 26, 34-36, 46-48, 39-41 and 50-55 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 6-9, 14-15, 17, 19-22, 25-26, 29-30, and 34-35 of U.S. Patent No. 7,141,518 ('518 hereinafter).

Although the conflicting claims are not identical, they are not patentably distinct from each other because 1-3, 6-9, 14-15, 17, 19-22, 25-26, 29-30, and 34-35 of '518 are drawn to a substrate comprising nanoparticles having a surface area of at least about 50 square meters per gram, the nanoparticles are modified with a metal ion and have a negative zeta potential prior to modification with the metal ion, the zeta potential of the modified nanoparticles is greater than the zeta potential of the nanoparticles prior to the

modification, the substrate contains polyolefin fibers, a personal care product comprising the substrate and protective barrier clothing.

Since the instant application claims a film comprising high surface area silica nanoparticles with a metal ion, with zeta potential higher after the metal ion was adsorbed on the surface of the nanoparticle, used in a personal care product such as a diaper or adult incontinence product it is obvious over the claims of '518 and thus they are not patentably distinct over each other.

### ***Conclusion***

21. No claims are allowed.
22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aradhana Sasan whose telephone number is (571) 272-9022. The examiner can normally be reached Monday to Thursday from 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached at 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 1615

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Aradhana Sasan/

Examiner, Art Unit 1615